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FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION RESPONSE TO COMMENTS JULY 1998 OF DRAFT REMEDIAL INVESTIGATION REPORT OPERABLE UNIT 16 (OU16) SITE 41 WETLANDS NAS PENSACOLA FL

08/01/1998

FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION

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RESPONSE TO COMMENTS
DRAFT REMEDIAL INVESTIGATION REPORT
OPERABLE UNIT 16 - SITE 41 (NAS Pensacola Wetlands)
NAS PENSACOLA

Comment 1:
In Section 7.0 (Data validation), I have concerns about the quality of the data based upon what is indicated in Tables 7-1, 7-2, 7-3, and 7-4. Specifically:

a) In Table 7-1 (Volatile SDGs), 62% of the Continuing Calibration (CCal), 46% of the Internal Standards (IS) and 75% of the Blanks did not meet one or more of the Quality Control (QC) criteria.

b) In Table 7-2, (Semivolatile SDGs), 58% of the CCAL, and 58% of the Blanks did not meet one or more of the QC criteria.

c) In Table 7-3 (Pesticide SDGs), 33% of the Initial Calibration (ICal), and 71% of the surrogates did not meet one or more of the OC criteria.

d) In Table 7-4 (Inorganic SDGs), 96% of the Blanks, 76% of Matrix Spike (MS), 32% of the lab duplicates, and 84% of the atomic absorption spike recoveries did not meet one or more of the QC criteria.

Based on the above qualifications, I question whether the data shown is acceptable overall as the table indicates. Based upon a high percentage of errors within the above identified validation parameters, it would appear that the data should be treated with some suspicion. The problem appears to be within the laboratory rather than the sampling holding times or as a result of sampling methodologies.

Response:
The purpose of Tables 7-1 through 7-4 (now in Section 5) is to give the reader an overall indication of where the QC criteria outliers occur. It is not meant to specifically outline the magnitude of the deficiencies in the data. As outlined in the notes for each table, there may be one or more exceedances for a given QC parameter. Hence, it is not possible to determine the percentage of data that has acceptable QC. The reader should refer to the completeness percentage which gives a more accurate indication of how much of the data is usable. For this project, completeness was estimated to be 98.6%. This number indicates that only 1.4% of the data is considered unusable. Of this unusable data, no detected results were qualified as unusable, and therefore, most of the applied qualifiers indicated that the values reported (detections or quantitation limits) are estimated.

Estimated values generally indicate that reported sample results associated with QC outliers are not accurate and may be biased high or low, depending on the QC parameter deficiency or

whether the outlier is above or below the QC limit. Estimated values do not indicate a problem with compound or element identification. Therefore, estimated values are still acceptable for use.

The table below lists by parameter the percentage of data that was flagged as estimated (J or UJ) and unusable (UR) and tentatively identified (NJ).

Parameter	Percentage of "J" data	Percentage of "UJ" data	Percentage of "UR" data	Percentage of "NJ" data
Metals	15.5	3.5	0.36	NA
Pesticides/PCBs	4.4	6.7	1.2	0.02
SVOCs	1.7	1.5	0.36	NA
VOCs	0.69	1.3	1.3	NA
HF Metals	0.3	0.12	0.1	NA
Total		4.95	1.43	0.02

HF = hydrofluoric
NA = NJ qualifiers are applicable only to pesticide/PCB analyses. The "NJ" flag indicates the presence of an analyte for which there is presumptive evidence to make a tentative identification at an estimated concentration.

The percentage of "J" data may be an overestimate or an underestimate because the laboratory reports organic data detected below the contract required quantitation limit (CRQL) as "estimated". The "J" flag is retained during the validation process, although it is not an indicator of poor QC. Additionally, metals data is reported by the laboratory with a "B" flag to indicate that the reported result is less than the contract required detection limit (CRDL) but greater than the instrument detection limit (IDL). During validation, the "B" qualifiers are replaced with "J" qualifiers for consistency between organic and inorganic data, and consistency with the National Functional Guidelines for Inorganic Data Review validation qualifier scheme.

Comment 2:
On page 8-228, the document indicates, based on fish tissue analysis comparison to wetlands Nos. 18, 64, 33, (reference marine wetland), and 75 (reference freshwater wetland), that, due to the highest hazard quotient (HQ) of 15.55 in wetland No. 75, it demonstrates the ubiquitous nature of DDT distribution. However, the fish tissue data does not correlate with the sediment data hazard quotients and values in these respective wetlands. Wetland 75 had lower values for DDT and its derivatives than both wetland 18 and 64. There appears to be some other factor which may be causing the increased DDT values in fish tissue at wetland 75. I would concur that DDT will likely

be found in sediment in most areas of the base because of past usage. However, this does not mean that it should be disregarded.

Also, on this page, it states that lead does not bio-accumulate. I disagree with this statement. Lead can bio-accumulate but does not bio-magnify.

Response:
Factors such as high lipid content in the fish tissue from Wetland 75 and the wetlands relatively small size is stated to explain why DDT concentrations are so high relative to fish tissue from other wetlands. This issue is discussed in the text.

The term "bio-accumulate" will be replaced with the term "bio-magnify."

Comment 3:
On page 8-231 change "used as a control" to "used as a reference".

Response:
The change has been made in the text.

Comment 4:
In Section 8.2.8 (Data Analysis and Interpretation), much weight is given to results in reference wetlands compared to results in the other wetlands as the analysis relates to sediment toxicity and bio-accumulation results, specifically Wetland 75. There may be numerous uncertainties involved or factors of this wetland may not have been ideal to include it as a reference. This is the reason laboratory control samples are important for comparison. When a reference wetland fails, the control sample results should have the most weight for comparisons. Also, based upon the discrepancies indicated in the fish tissue bio-accumulative impacts, laboratory control samples for bio-accumulation would have been beneficial. The uncertainty segment of this section provides some of this analysis but needs to include some of the other uncertainties I have previously mentioned.

This segment also indicates that uncertainties are compounded by the use of toxicity, diversity and bio-accumulation studies. I agree there are uncertainties within each of these respective analytical methodologies. However, they are performed to reduce uncertainties overall, rather than compound them. They will make the analysis more complex.

Response:
As agreed by the Tier 1 Partnering Team, Wetland 75 will no longer be used as a reference wetland.

Laboratory controls were used as a comparison for the toxicological studies. One can assume that laboratory controls will be zero for tissue bioaccumulation since these control species will not be exposed to contaminants.

The statement that additional analyses compound the uncertainties will be changed to state that they will increase the complexity of the analysis.

RESPONSE TO COMMENTS
SITE 41 — NAS PENSACOLA WETLANDS, NAS PENSACOLA
July 20, 1998

Comment 1:
I believe the subsistence fisherman screening toxicity values in Table 8.3.7 from USEPA Region III RBC Tables are expressed in mg/kg. The values used for screening concentrations are shown as being in μg/kg. I believe the two values were compared without converting to like units. Taking this under consideration should reduce the number of Chemicals of Potential Concern (COPCs) flagged. The revised lists of COPCs for this exposure scenario should be revised throughout the report.

Response:
These tables will be reviewed to assure that the concentration units for the data match the concentration units for the screening values.

Comment 2:
I believe that arsenic should be flagged as a COPC for Wetland 19 sediment and surface water in Tables 8.3.33 and 8.3.34 under the adolescent site trespasser scenario.

Response:
Arsenic will be added to the COPCs for Wetland 19.

Comment 3:
Arsenic in sediment and surface water should be COPCs for Wetland 15 under the adolescent site trespasser scenario.

Response:
Arsenic will become a COPC for Wetland 15.

Comment 4:
It appears there was at least one exceedance of surface water standards in most of the wetlands where surface water sampling occurred. The number of samples that had exceedances of specific contaminants, the concentrations of contaminants in sediment and the nature of the contaminants should be used to devise a confirmatory sampling plan to confirm surface water contaminant concentrations. Because suspended sediment may be the major contributor to these surface water

exceedances, it may be necessary to utilize a different sampling technique to collect those samples or it may be necessary to filter surface water samples.

Response:
Suspended sediment likely contributes to the relatively high contaminant levels, especially since there is not a known source of those contaminants near these wetlands. This point will be stated in Section 10 of the text. Turbidity readings will be presented with the surface water analytical results.

For human receptors, data generated from unfiltered surface water samples provide the most realistic exposure estimates based on the swimming and dermal contact pathways assumed in the risk assessment.

Comment 5:
Sampling locations for Wetland 64 for Phase IIB were selected in areas where relatively high, medium and low levels of contamination were detected in Phase IIA. Location 05 was selected as representing a highly contaminated area (HI=245.1), location 06 as moderately contaminated (HI=89.6) and location 04 as moderately to lightly contaminated (HI=79.2). However, the Hazard Indices (HIs) at sample locations 04 and 06 were very different between Phase IIA and Phase IIB. During Phase IIB, location 06 had the highest concentrations of contaminants (HI=564.5), location 04 was also high (HI=423.2) and location 05 had the lowest concentrations of contaminants (HI=344.3). This might explain why acute toxicity effects to *Leptocheirus plumulosus* were observed in sediment at locations 04 and 06, areas expected to have less adverse effects than location 05 based on Phase IIA analyticals. However, it is unknown why no acute effects were seen at sampling location 05, which still had comparable levels of contaminants detected in sediments to that seen at locations 04 and 06. While highly impacted sediments have shown acute toxicity effects, further assessment at this wetland will be necessary on slightly and moderately impacted sediments to determine their ecological effects.

Response:
The RI report has concluded that the contaminants present in wetland 64 pose an ecological risk.

Comment 6:
I feel there may not be enough toxicity testing on biota done to adequately determine what contaminant concentrations would provide unacceptable ecological risks. In estuarine wetlands 64,

16, 18 and reference wetlands 33, only highly contaminated sediment from Wetland 64 showed adverse effects to biota in toxicity testing. Potential adverse effects from DDT were modeled for the blue heron in wetlands 64 and 18. However, only one sample was collected for toxicity testing from wetlands 16 and 18. Freshwater wetlands 3, 5A and reference wetland 75 all had at least one sample that produced statistically significant growth effects to biota.

Response:
As part of the partnering process, the Navy has continually sought the expertise of ecological experts from the EPA, FDEP and NOAA. All decisions made regarding the development of the Site 41 investigation were made with concurrence of both the ecological experts and the project managers for all agencies. These decision included the selection of the reference wetlands, color-coding of the wetlands, selection of wetland for no-further action, and assessment and measurement endpoints. All of the decisions have been documented in the Partnering Team Meeting Minutes and documents preceding the completion of this Remedial Investigation Report, which have been included in the NAS Pensacola Administrative Record. The Navy refers the reviewers to those documents.

Because the sediments within the wetlands contain a highly variable mix of contaminants, it may not be possible to determine what specific contaminants may be causing risk. In fact, it could be that many contaminants acting through synergistic effects are causing risk. This will be stated in the uncertainty section.

Comment 7:
It may be necessary to rethink the selection of reference wetland 75. Only one sample location was selected from this wetland. Sediment at the location had light to moderate levels of pesticide (HI=23), particularly DDT and its metabolites. However, sediment and surface water collected from that location caused statistically significant growth effects to *Chironomous tentans* and *Pimephales promelas*. Also, concentrations of DDT and its metabolites detected in baitfish, when modeled to calculate potential dietary exposure, would appear to pose a risk to the blue heron. I feel this wetland might be inappropriate for use as a background wetland for comparison to other wetlands. The contaminants detected in sediment, surface water and bait fish and the aquatic effects observed may indicate that more severely impacted wetlands may have significantly greater ecological risks associated with them than that seen in reference wetland 75.

Response:
Wetland 75 has been eliminated from consideration as a reference wetland.

Comment 8:
Referenced wetland 33 appears to have been an appropriate selection as a relatively unimpacted estuarine wetland. Sediment samples collected from wetland 33 had low contaminant concentrations detected and proved to have no statistically significant adverse effect on either *Leptocheirus plumulosus* or *Neanthes arenaceodentata*. It does not appear that DDT in baitfish would pose a risk to the blue heron (see comment 15).

Response:
Noted.

Comment 9:
Several wetlands, not assessed in Phase IIB, contained contaminants in sediment and surface water at levels that may indicate a risk to human and/or ecological receptors. The following wetlands, originally categorized as red or orange may need to be further addressed by sediment and surface water sampling, collection and analysis of contaminants in bait fish, toxicity testing or monitoring:

a. Wetland 10 - *sediment:* moderately high levels of DDT and its metabolites, one sample very high in metals. *surface water:* exceedances of DDD, DDT, cadmium and silver (silver may be anomaly).

b. Wetland W1 - *sediment:* moderately high levels of cadmium, lead, DDT, and its metabolites. *surface water:* lead exceedances in all three samples.

c. Wetland 1 - *sediment:* moderately high levels of DDT in majority of samples, high levels of PCB and dieldrin in some samples and slightly elevated levels of lead, cadmium and mercury.

d. Wetland 48 - *sediment:* extremely high levels of DDT and its metabolites

e. Wetland 15 - *sediment:* DDT and its metabolites distributed across wetland, some metals and PAHs above TELs. *surface water:* large exceedances of surface water standards for aluminum, arsenic, beryllium, chromium, copper, iron, lead, mercury, nickel and zinc in upgradient sample closest to Site 1. A sample taken downgradient of this had much lower levels, but still had exceedances for copper, lead and iron.

f. Wetland 6 - *sediment:* DDT and its metabolites and dieldrin distributed along the wetland, elevated at some locations. *surface water*: exceedances of surface water standards for 1,1-DCE, BEHP, cyanide, lead and mercury.

g. Wetland 63A - *sediment:* relatively high levels of DDD, PCB, dieldrin and metals, especially cadmium and lead.

h. Wetland 49 - *sediment:* DDT and its metabolites.

i. Wetland 4D - *sediment:* elevated metals, DDT and its metabolites, dieldrin, PCB and PAHs.

Response:
Sediment contaminant concentrations in the above wetlands will be compared to the sediment contaminant concentrations in the wetlands sampled for toxicity and/or bioaccumulation. Doing this analysis might demonstrate that effects are not likely to occur in these wetlands without having to incur the additional expense of field studies.

In addition, many of the above wetlands are, for most of the year, dry, grassy areas that would cause minimal exposure to an ecological receptor. These wetlands descriptions will be clarified in the text to indicate that they are considered to pose minimal ecological risk based on exposure routes alone.

Comment 10:
Wetland 13 and 19 had high levels of metals detected in surface water. Because these wetlands are not associated with a contaminated site and elevated concentrations of these metals were not detected in sediment, it may be that suspended sediments are the root cause of the high levels detected. The suspended sediments may be naturally occurring, or may be caused by sampling methodology, low water levels or the means of transport to the sampling location. Resampling and analysis of surface water (possibly a filtered sample) would likely have much lower levels of metal, hopefully below surface water standards.

Response:
This issue was discussed during development of the remedial investigation. It was agreed that suspended sediment likely contributed to the relatively high contaminant levels, especially since there was not a known source of those contaminants near these wetlands. This point will be stated in the text. Turbidity readings will be presented as appropriate with the surface water analytical results.

Comment 11:
Some of the hazard quotients calculated in Table 8.2-183 on page 8-233 do not seem to be correct.

Response:
These calculations will be reviewed and corrected as necessary.

Comment 12:
Some of the calculations in Table 8.2-157 on page 8-206 do not seem to be correct.

Response:
These calculations will be reviewed and corrected as necessary.

Comment 13:
On Table 8.2-46, page 6-63, the numbers for samples 003M000801 and 003M000901 may have been inadvertently switched.

Response:
These sample location references will be reviewed and corrected as necessary.

Comment 14:
On Figure 8-8, page 8-56, wetland 12, apparently the hazard quotient for 2-methylnaphthalene was inadvertently left out of the calculation of the hazard index.

Response:
This calculation will be reviewed and corrected as necessary.

Comment 15:
Total DDT calculated for sample 041J330201 from Table 8.2-180 on page 8-230 would be.0029 mg/kg. It is listed as being .029 mg/kg in Tables 8.2-181 and 8.2-183. A concentration of .0029 mg/kg, if correct, should not prove a risk of bioaccumulation for the blue heron.

Response:
This calculation will be reviewed and corrected as necessary.

Comment 16:
Table 8.2-117 is the same as Table 8.2-122. Table 8.2-118 is the same as Table 8.2-121 Table 8.2-119 is the same as Table 8.2-120.

Response:
These tables will be reviewed and corrected as necessary.

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